CONSTRUCTION EDITION CONSTRUCTION EDITION CONSTRUCTION EDITION

STORM REPORT

LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

Volume 9 December 2001

Sampling and Analysis Plan

Complying with State Water Resources Control Board Resolution No. 2001-046 (NPDES General Permit for Storm Water Discharges Associated with Construction Activity)

By Ejigu Solomon
Senior Engineering Geologist

All construction projects must ensure that proper self-inspections are conducted throughout the duration of the projects to make sure that appropriately selected BMPS have been implemented, are being maintained, and are effective in preventing potential pollutants from coming in contact with storm water and causing or contributing to exceedance of water quality objectives in receiving waters.

All projects must have modified their storm water pollution prevention plans (SWPPPs) to include a sampling and analysis strategy and schedule pursuant to the new requirements (was due on August 1, 2001). One of the first items our inspectors check at your construction projects is if you have amended your SWPPP to take into account the sampling, analyses and reporting requirements. Also, if we observe such construction

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Pollution Prevention

Erosion and Sediment Controls

By Jeff Mack
Environmental Scientist

The General Permit requires the development of a site specific Storm Water Pollution Prevention Plan (SWPPP), which specifies Best Management Practices (BMPs). BMPs prevent construction associated pollutants from contacting storm water, and keep sediments and other construction wastes from moving off site. Storm water discharged to water bodies such as rivers, flood control channels and the Pacific Ocean are said to be discharged to receiving waters of the State.

BMPs exist for both erosion control and for sediment control. Put simply, erosion control can be thought of in context of a map view of a construction site. Sediment, both disturbed and naturally occurring, should not be allowed to move from a source area(s). Sediment controls, on the other hand, are physical barriers to sediment set in motion by storm or non-storm water discharges.

Erosion Controls

Erosion controls aim for protecting vulnerable surfaces so as to prevent the movement of sediment, and possible discharge from the construction site. Erosion controls can include mulching, temporary or permanent seeding, soil stabilizers, bonded fiber matrix rolls and hydromulching. The idea behind measures such as these is to minimize the disturbance of the surface soil or sediment layer and tendency to erode, and to lessen the forceful impact of rain on this layer to prevent erosion. The ultimate disposition of a disturbed slope is to leave it in a state of stabilization. This is typically achieved through permanent vegetation and engineered soil stabilization practices.

Examples of effective erosion controls are as follows:

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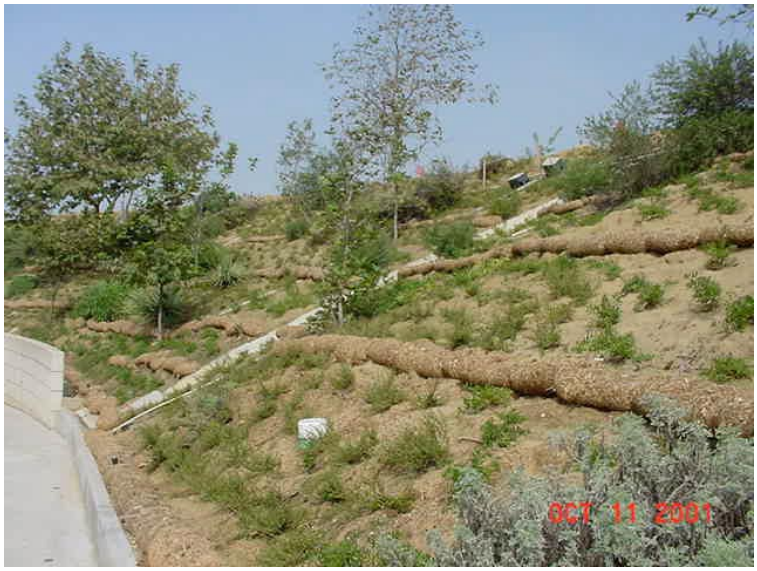
waste as concrete washout and stucco spill, a notice of violation (NOV) will be issued for the violation. In the NOV, we direct the project site to have sampling equipment on-site for field analysis of pH, conductivity, turbidity, total nitrogen and dissolved oxygen. Alternatively, Los Angeles Regional Board staff accept an executed agreement with an accredited laboratory that is documented in the SWPPP. The agreement will typically state that the laboratory staff will sample and analyze the indicated parameters in accordance with 40 Code of Federal Regulations Part 136. The reporting requirement follows that set forth in part B.3 (Receiving Water Limitations) of the General Construction Permit.

Thus, the best defense that can preempt sampling and analysis is good housekeeping. ❖



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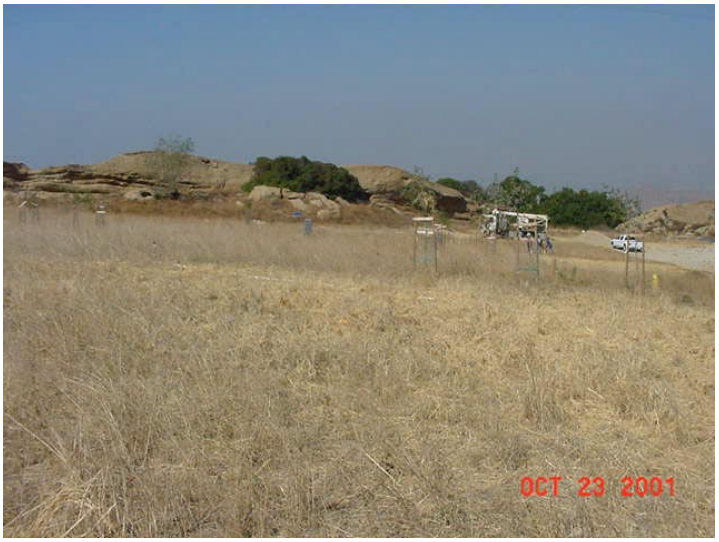
The first photograph (below) shows a former soil contamination area now planted in native herbaceous flora. The vegetation protects the soil from the intensity of rainfall, and holds the soil from effects of erosion.



The second photograph (above, right) shows the use of landscape materials on a silt and soil. This slope was previously experiencing significant erosion, which has been remedied through good BMP implementation.

Sediment Controls

Sediment controls are implemented to prevent a net increase in sediment load in storm water and non-storm water discharges relative to construction or grading activity. Sediment controls are needed at appropriate locations of the site perimeter (typically at breaks in topography from flat to sloping) at all times of the year. Storm drain conveyances need additional protection during the rainy season (defined as October 1 to April 30). Sediment controls include the familiar sand bags and silt fences (installed up slope of the sand bag support), and may also include engineered applications. Examples of these are sediment desilting basins, gravel inlet filters and manufactured sediment socks or rolls. The idea behind these applications is to prevent the discharge of sediment and associated non-visible pollutants to storm drains and ultimately to receiving waters of the State. **Sediment controls are the last line of defense; a site with perfectly designed and implemented erosion controls would have minimal need for sediment controls!**

Examples of effective sediment controls are as follows:

The first photograph (top left of page 3) shows good BMP implementation. Sediment is coming from a cut slope to the left of the road way. From left to right (to the right of the road way) is a gravel filled sock, sandbagging and silt fencing. The sock, in approximately 20 foot sections, acts as a sediment barrier and allows water to pass through the gravel. The sandbagging is designed to slow water velocity as it moves

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downgradient along side of the road. Finally, the silt fencing is a last line of defense leading to a sensitive environmental marsh.

The second photograph (below) shows the use of broken rock (rip rap) in a stream channel as a BMP. The rock is situated in such a manner as to slow the velocity of water. Slower movement of water allows for sediment to drop out of suspension, and has the additional benefit of reducing the erosional effect of faster moving water.

A well developed and implemented SWPPP, with good BMP applications, is the key to a well managed construction site. **Erosion and sediment controls are extremely important for the protection of water quality. Observation and maintenance of the erosion and sediment control BMPs is essential for the control of erosion at the site and sediment loss to receiving waters of the State.** ❖

Keeping Your Construction Site in Compliance

By Ejigu Solomon
Senior Engineering Geologist

Realizing that we are in the rainy season, it is important to note specific areas of concern to the Los Angeles Regional Board:

- Prevention of erosion and limitation of silting
- Maintenance of natural vegetation and planted slopes
- Elimination of non-storm water discharges (e.g. rinse water, sprinkler run-off) into storm drain systems
- Keeping all storm water pollutants from developed areas at or below their predevelopment levels
- Keeping cement/stucco-related materials and other construction waste out of the street right-of-ways (beginning behind the sidewalks) and storm drain system (catch basins)
- Minimizing entrances to construction sites, and implementing a well-designed entrance system to prevent sediment tracking onto streets❖

Frequently Asked Questions

By Ejigu Solomon and Tracy Woods
Senior Engineering Geologist and Environmental Scientist, respectively

Q: Do I have to keep the road free of sediment during the non-rainy season?

A: Roads and catch basins have to be free of sediments throughout the year. Although rain forecasts can be reliably used to prepare to beef up erosion and sediment best management practices (BMPs), full preparation requires that one is also ready for the unexpected rain, or other stresses on

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the BMPs. For example, other erosion mechanisms, such as wind can also add sediment load into conveyances and receiving waters. Also, accidents can happen, such as spills and water line breaks. When the spills and line breaks occur what ever is in its path will be carried with the fluid down the storm drain. Therefore, roads have to be free of sediment throughout the year.

Q: How do city and county inspections and requirements differ from those of the State?

A: Cities and the County are co-permittees to a state -issued municipal storm water permit. The permit requires them to implement in their jurisdictions storm water programs such as public education, industrial, commercial and construction inspections, storm water conditioning of land development planning, receiving water and land use monitoring and the elimination of illicit connections and illegal discharges. In addition, these local agencies have their own ordinances that enhance the state storm water program, and dischargers and permittees may find out from their respective local agency what these specific requirements that apply to their sites are. The Los Angeles Regional Board has a discretionary authority to enforce against a city/County in which a repeat violator construction site is located.

Q: Is implementing BMPs enough to meet all general permit requirements?

A: Implementing appropriate BMPs for erosion and sediment control, construction site entrances, non-storm water discharges, and construction waste is the most fundamental means of complying with most of the requirements of the permit. Also, self-inspections and maintenance of these BMPs also play a crucial role. When a BMP is found to be not addressing the concerns it was supposed to address, changing to a new BMP, or upgrading the existing BMP improves compliance capability. This iterative approach ensures a pro-active stance by the discharger. Finally, the preparation, retaining on-site and updating of a storm water pollution prevention plan (SWPPP) that addresses the foregoing issues is the soul of the storm water management program.

Q: What erosion control BMPs are acceptable?

A: Depending on minimum time soil stabilization required, soil type, slope, and disturbed soil area size, appropriate erosion controls may be used to stabilize disturbed areas. There are various types of erosion control materials, from biodegradable mulches, to temporary seeding and impervious covers. The following are the most commonly used in our area: straw and wood fiber mulch, jute mesh and plastic netting, bonded fiber matrix, polymer hydraulic soil stabilizers, and various seeding.

Q: How often are inspections to be performed and inspection checklists to be filled out?

A: The general construction permit states that qualified personnel shall conduct inspections of the construction site prior to anticipated storm events, during extended storm events, and after actual storm events to identify areas contributing to a discharge of storm water associated with construction activity. It adds that during extended storm events, inspections shall be required each 24-hour period. The purpose of all these inspections is to verify the effectiveness of BMPs, and do appropriate maintenance and repair. The inspection checklists should include, at a minimum, names of inspectors, the date and time, list of BMPs, observations, and corrective actions. Although the General Construction permit does not specify that inspection reports be kept in the SWPPP, the Los Angeles Regional Board staff strongly encourage dischargers to put all inspection reports in their SWPPP for easy review.

Q: How do I comply with the new sampling and analyses requirements?

A: The April 2000 Resolution no. 2001-046 has modified the General Construction Permit. The modifications to the General Permit require that a sampling and analysis strategy and sampling schedule for discharges from construction activity be developed and included in the project's SWPPP. A sampling and analysis strategy and sampling schedule must be developed regardless of the time of the year that construction occurs. Compliance with the modified requirements can be achieved by good housekeeping and source control of pollutants, and by updating SWPPPs with the new modifications and compliance strategy. Our staff, pursuant to permit requirements, require that all permittees should have modified their SWPPPs by August 2001. In addition, at those

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sites where Regional Board staff have observed non-visible pollutant spills (e.g., concrete washout), a notice of violation (NOV) signed by our Executive Officer is issued to the site. The NOV requires, among other things, that the discharger have either a field sampling equipment to analyze for indicator parameters, such as, pH, conductivity, turbidity, total nitrogen, and dissolved oxygen, or the discharger shall produce evidence of an agreement with a certified laboratory to do the sampling, analyses and the reporting for them.

Q: Where and when is a water sample collected, who do I report it to?

A: Storm water runoff samples must be collected regardless of the time of year, status of the construction site, or day of the week. Samples should be collected during the first 2 hours of runoff. Storm water inspections and sample collections are required even during non working days. Samples must be collected at locations identified in the discharger's SWPPP identified by visual observation where there has been a BMP failure or breach and which can be easily accessed. In order to compare the results of the sample of interest with a sample collected from a location that is not affected by material storage and use activities, a location must be selected to collect uncontaminated runoff sample. For a widely spread potential contaminant (such as an added soil amendment), the discharger may need to select sampling locations at the perimeter of the site.

In the event that the reported runoff value for the sample of interest is higher than the uncontaminated sample result, the reporting requirements are spelled out in Section B of the permit under "Receiving Water Limitations": the discharger has to implement corrective actions immediately, followed by telephone notification to the LARWQCB no later than 48 hours. This has to be followed by a report detailing the discharge and the corrective action within 14-calendar days. Finally, the discharger has to update the site SWPPP to incorporate the additional BMPs, implementation schedule, and any monitoring needed. ❖

STORM WATER CONTACTS

For Information about the Regional Board's Storm Water Program, and to download forms, please visit our web site: www.swrcb.ca.gov/rwqcb4/html/programs/Stormwater/stormwater.html

You can also call our Storm Water Hotline at 213-576-6753.

If you need to contact the State Board, you may call 916-3441-5536, or send an email to:stormwater@dwq.swrcb.ca.gov

The State Board web site also contains lots of useful information and documents available for downloading: www.swrcb.ca.gov

You can also reach us directly:

REGIONAL BOARD MAIN LINE: 213-576-6600

STORM WATER SECTION

Xavier Swamikannu, Acting Section Chief: 213-576-6654
Weindy Abarquez, Secretary: 213-576-6802
Sumaira Noreen: 213-576-1369

LOS ANGELES INLAND UNIT

Yi Lu, Unit Chief: 213-576-6728
Kristie Chung: 213-576-6807
Jim Covin: 213-576-6742
Carolyn Hunter-Horton: 213-576-6663
Ivar Ridgeway: 213-576-6741
RoseLynn Wright: 213-576-1364

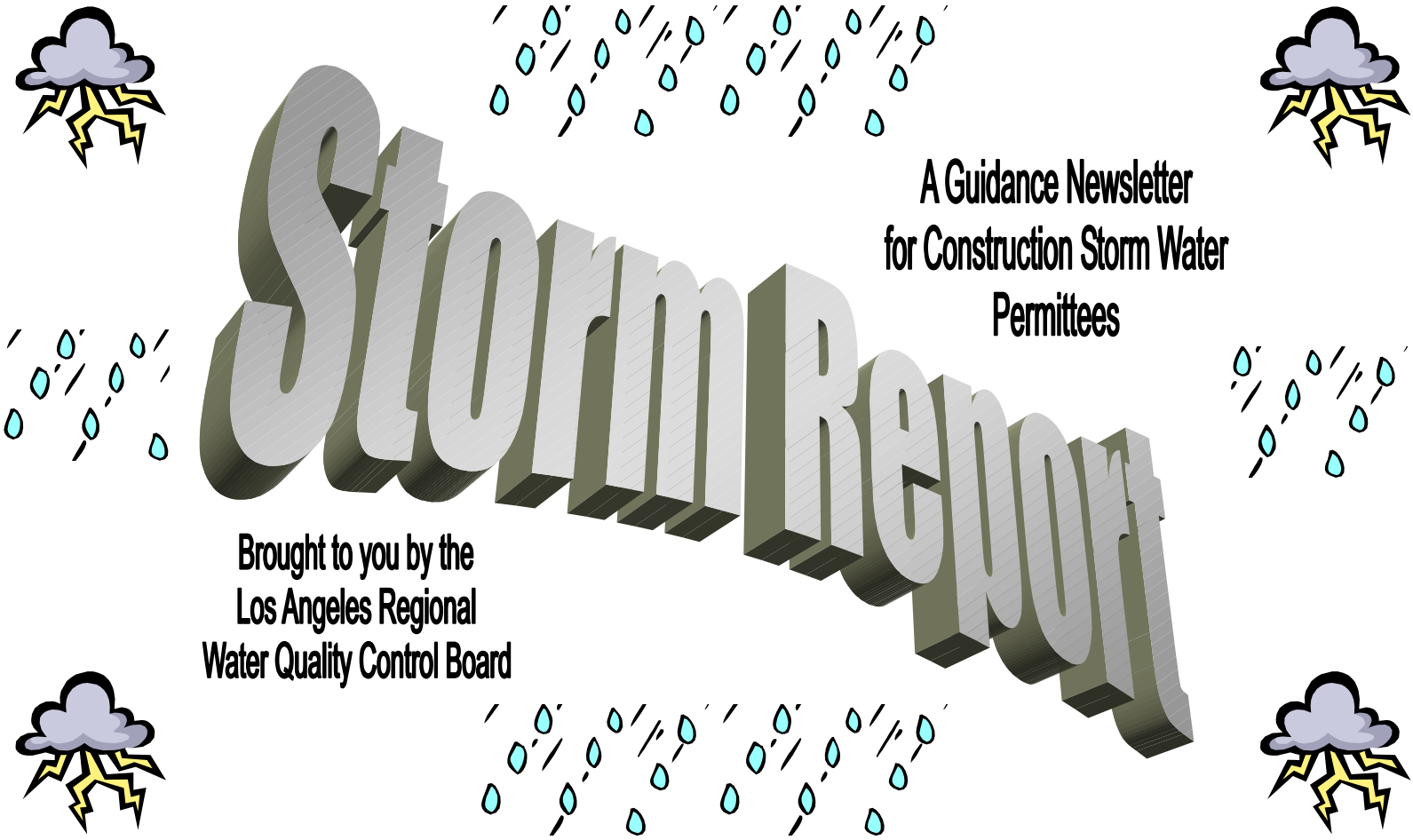
LOS ANGELES COASTAL UNIT

Vacant, Unit Chief
Megan Fisher: 213-576-6790
Lilia Martinez 213-576-6792
Dan Radulescu: 213-576-6668
Carlos Urrunaga: 213-576-6655

VENTURA UNIT

Ejigu Solomon, Unit Chief: 213-576-6727
Sean Lee: 213-576-6754
Enrique Loera: 213-576-6763
Jeff Mack: 213-620-6764
Tracy Woods: 213-576-6684
Matt Yeager: 213-576-6749

PLEASE NOTE the entire Storm Water Section will be moving soon. Our address with remain the same, but our phone numbers will not. The next edition of the newsletter will have our new numbers. Until then, if the above number does not work, please call our main line at 213-576-6600 and they will gladly connect you.❖



Storm Report – Storm Water Section
Los Angeles Regional Water Quality Control Board
320 West 4th Street Suite 200
Los Angeles, CA 90013

ADDRESS CORRECTION REQUESTED